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An Innovative and Smart Agriculture Platform for Improving the Coffee Value Chain and Supply Chain

- [Van Duy Nguyen](#),
 - [Tri Cong Pham](#),
 - [Chi Hieu Le](#),
 - [Thanh Trung Huynh](#),
 - [Tan Hung Le](#) &
 - [Michael Packianather](#)
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Abstract

Vietnam is the world's second biggest producer of coffee and has been an exporter for several decades. However, Vietnam has been facing many well-documented issues and challenges in the whole coffee supply chain such as climate change; low productivity, poor quality and high cost; excessive use of fertilizing products and irrigations; poor collection, processing and storage solution; low sustainability and limited value-added coffee products; and low applications of smart and sustainable agriculture solutions. This paper introduces an innovative and smart agriculture (INNSA) platform for the creation and operation of a sustainable coffee value chain, with the focus on enhanced quality and added values for key elements of the coffee supply chain in Vietnam. The platform is designed based on the foundations of the key enabling digital transformation and smart agriculture technologies: Smart devices and Internet of Things, big data, artificial intelligence, blockchain and source traceability technologies, and sustainable design and manufacturing. The INNSA platform has the following key features: a smart database with real-time data inputs and updates, cost-effectiveness, and open-architectures for effective integrations of the enabling digital transformation and smart agriculture technologies. The smart platform and ecosystem of INNSA provides the information portal and open-access database for all key factors of coffee supply chain, enabling them to join and interact with each other to bring the coffee industry of Vietnam to a higher level, well-recognized in terms of values, branding and sustainability.

Keywords

- **Coffee value chain**
- **Big data**
- **Artificial intelligence**
- **Source traceability technology**
- **Internet of things**
- **Vietnam**

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Author information

Authors and Affiliations

- Institute of Biotechnology and Environment, Nha Trang University, Nha Trang City, Vietnam**
Van Duy Nguyen
- School of Computer Science and Engineering, Thuy Loi University, Hanoi, 100000, Vietnam**
Tri Cong Pham

3. Faculty of Engineering and Science, University of Greenwich, Kent, ME4 4TB, UK

Chi Hieu Le

4. SOICT, University of Science and Technology, Hanoi, 100000, Vietnam

Thanh Trung Huynh & Tan Hung Le

5. School of Engineering, Cardiff University, Cardiff, CF24 3AA, UK

Michael Packianather

Corresponding author

Correspondence to [Van Duy Nguyen](#).

Editor information

Editors and Affiliations

1. Hanoi University of Industry, Bac Tu Liem, Hanoi, Vietnam

Thi Dieu Linh Nguyen

2. Department of Computer Science, University of Huddersfield, Huddersfield, UK

Joan Lu

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